Space Weather Forecast

Issued on Friday, 12 April 2024 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Moderate activity. Slight chance of Minor geomagnetic storms on 13 and 14 Apr.

Analysis of Space Weather Activity over past 24 hours.

Solar Activity: Solar activity has been Moderate, with the largest flare of the period from a region behind the east limb. On the visible disc there are five sunspot regions. Of these two are moderately magnetically complex. The remaining regions are magnetically simpler, although despite this one region in the far northeast has been the most active region on the visible disc, while increasing in area over the past 24 hours.
Two eruptions were observed leaving the north-central disc early on 11 Apr. The associated coronal mass ejections (CME's) have been analysed and are not expected to be Earth directed.

Solar Wind / Geomagnetic Activity: Solar wind speeds were at slightly elevated levels, around 450-500 km/s for much of the day, then later declining to closer to 400 km/s, with the Earth under the residual influence of a fast solar wind. Total magnetic field strength was weak, with the north-south component also varying weakly. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to start at Low levels, but with an increasing chance of Moderate activity later in the period as significant returning regions rotate onto the visible disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently forecast. Solar wind speeds are expected to continue to ease through today as a fast solar wind wanes. A further fast solar wind is then expected to connect with Earth through 13 and 14 Apr, with speeds of 450-500km/s forecast. Geomagnetic activity is forecast to be mainly Quiet to Unsettled today, and again day 4 (15th Apr). Unsettled to Active intervals are then possible on 13 or 14 Apr as the next high speed stream connects. Depending on the strength of the connection, there is a risk of Minor Storms.

Energetic Particles / Solar Radiation: Solar radiations expected to persist at background levels during the period given the lack of appropriate active sunspot regions on the disc.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	30	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	30	45	45	45
Very Active	R3 to R5 X	No	1	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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